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Firefly luciferase, synthesized to very high levels in caterpillars infected with a recombinant baculovirus, can also be used as an efficient reporter enzyme in vivo.

Jha PK, Nakhai B, Sridhar P, Talwar GP, Hasnain SE.

National Institute of Immunology, Shahid Jeet Singh Marg, New Delhi, India.

Trichoplusia ni and Spodoptera littoralis larvae were infected with a recombinant AcNPV, having the viral polyhedrin gene replaced with the cDNA encoding firefly luciferase. Both S. littoralis and T. ni synthesized very high levels of luciferase representing greater than or equal to 25% and greater than or equal to 15%, respectively of the total Coomassie blue stainable protein. Luciferase was apparently not secreted into the hemolymph but was contained within the body tissue. Expression in S. littoralis larvae suggests that luciferase can be an excellent reporter enzyme to study virus infection, dissemination and expression in different tissues, host range determination, insect physiology and also to monitor the release of recombinant virus in the environment when used as a biocide.

PMID: 2253776 [PubMed - indexed for MEDLINE]